# Determinants of bank efficiency: evidence from a semi-parametric mathodology

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# Determinants of bank efficiency: evidence from a semi-parametric methodology

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**Abstract**

**Purpose** – This paper aims to analyze bank efficiency into a number of bank-specific, industry-specific and macroeconomic determinants.

**Design/methodology/approach** – The authors follow a semi-parametric two-stage methodology, where productive efficiency is derived via a non-parametric technique in the first stage and then the scores obtained are linked to a series of determinants of bank efficiency, using a double bootstrapping procedure.

**Findings** – Overall, it is found that the banking sectors of almost all the sample countries show a gradual improvement in their efficiency levels. The model used shows that a number of determinants like bank size, industry concentration and the investment environment have a positive impact on bank efficiency, which is not the case when standard Tobit models are employed.

**Research limitations/implications** – The findings have important implications for the relevance of well-known hypotheses that refer to the performance of the banking sectors, like the structure-conduct-performance and the efficient structure hypotheses. These implications are not necessarily verified when past conventional econometric methodologies are used.

**Practical implications** – The paper offers new insights to policy makers, bank managers and practitioners on the relevance of a number of driving factors of bank efficiency that might help them to improve the performance of the banking system and enhance the quality of services provided.

**Originality/value** – This is the first paper in the bank efficiency literature that employs a semi-parametric two-stage model, which relaxes several deficiencies of previous two-stage empirical approaches thus, offering a solution to the many problematic features of standard censored regressions.

**Keywords** Banks, Cost effectiveness, Modelling

**Paper type** Research paper

## 1. Introduction

It has been established that banks, in their role as financial intermediaries, contribute significantly to economic activity in a number of ways. During the last two decades, the banking sector has experienced major transformations worldwide in its operating environment. Both external and domestic factors have affected its structure, efficiency and performance. An efficient banking sector is better able to withstand negative shocks and contribute to the stability of the financial system. Therefore, it comes as no surprise that since the publication of the seminal papers by Aigner *et al.* (1977) and Charnes *et al.* (1978), both econometric (parametric) and linear programming-based (non-parametric) methods have been employed in the estimation of bank efficiency.

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